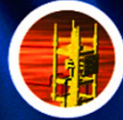


*API's Workshop on Development of Recommended Practice for
Annular Casing Pressure Management for Offshore Wells*

API Specification 17D: A Funny Thing Happened on the Way to the Rewrite

G. Ross Frazer, P.E.
Vice President, Engineering
ATP Oil & Gas Corporation
Chair, API 17D/ISO 13628-4 Task Group

17 August 2004



INCREASING
magnitude

*API Workshop on Development of Recommended Practice
for Annular Casing Pressure Management - API Specification
17D: A Funny Thing Happened on the Way to the Rewrite*



Murphy's Laws

Real-life applications

Collin's Conference Principle

The speaker with the
most monotonous voice
and least interesting
subject has the podium
after a big meal.



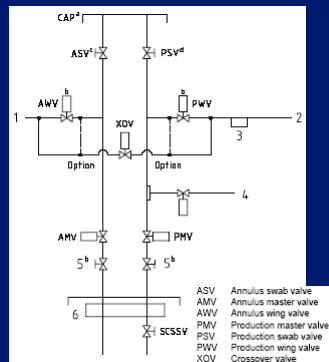
- API 17D: Specification for Subsea Wellhead and Christmas Tree Equipment
 - 30 October 1992 – First Edition
 - 1 March 1993 – Supplement 1
 - 1 August 1996 – Supplement 2
- ISO 13628-4: Petroleum and natural gas industries — Design and operation of subsea production systems —Part 4: Subsea wellhead and tree equipment
 - 15 June 1999 – First Edition



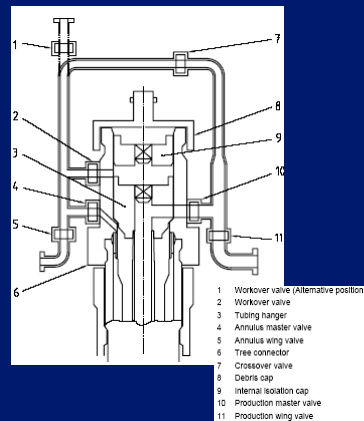


Matilda's Law of Subcommittee Formation

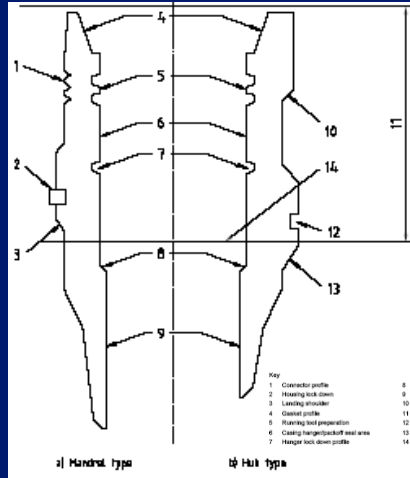
If you leave the room,
you're elected.



Vertical Tree



Horizontal Tree



Subsea Wellhead

ISO 13628 – 4 at 8.5.2.2.d & API 17D at 1001.5.b(2)(c) state, essentially, thou shalt not penetrate and thus introduces a conflict with the requirements of 30 CFR 250.



Kirby's Comment on Committees

A committee is the only life form with 12 stomachs and no brain.

Subsea System

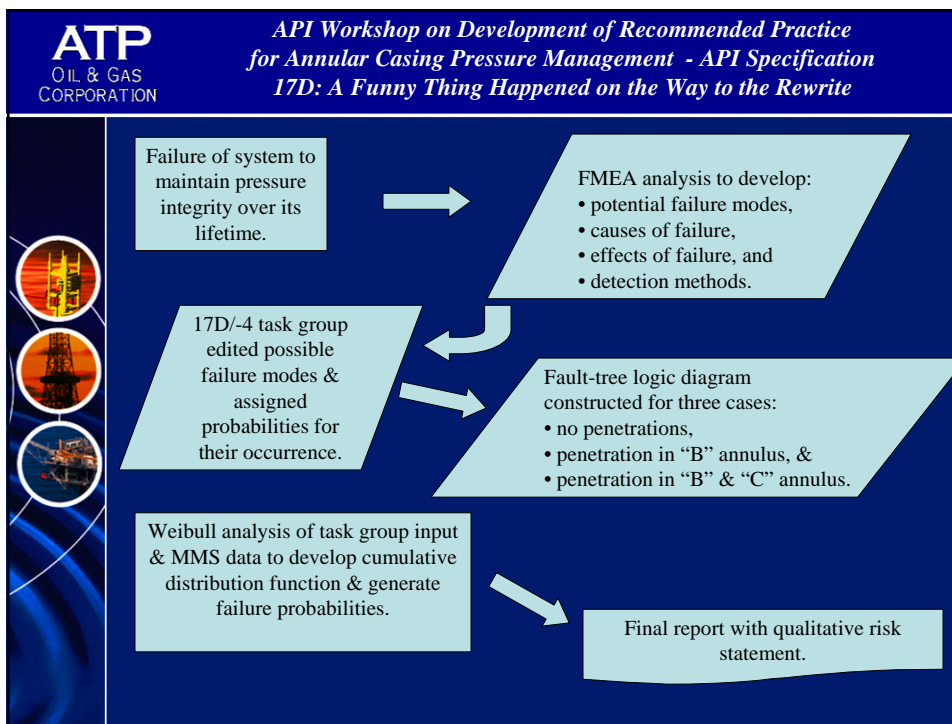
- Vertical or Horizontal
 - Weight set or rotation set?
 - Supplemental casing hanger capable?
 - Dual or single bore?
 - Tubing hanger in tree or wellhead?
 - Annulus crossover or umbilical bleed?
 - ...and so on...



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THERE'S GOOD MONEY TO BE MADE IN PROLONGING THE PROBLEM.

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Relative Risk Analysis Summary				
Event	Configuration	None	B-annulus	B & C-annulus
Failure of system to maintain a pressure barrier	2-inch penetrations	1.00	2.50	2.69
Failure of system to maintain a pressure barrier	½-inch penetrations	1.00	3.59	3.75



Benefits Summary

Monitoring	<ul style="list-style-type: none"> • Ability to monitor annular pressure
Diagnosis	<ul style="list-style-type: none"> • More versatility <ul style="list-style-type: none"> – More detailed knowledge of collapse margins – Quicker determination of thermally induced pressure – Monitoring pressure in adjacent annuli during diagnosis
Remediation	<ul style="list-style-type: none"> • Ability to bleed pressure through the penetration



Conclusions

1. Continue prohibition on penetrations in subsea wellheads
2. Emphasize prudent well construction techniques



Fox on Problematics

When a problem goes
away, the people
working to solve it do
not.



ATP Oil & Gas Corporation
4600 Post Oak Place, Suite 200
Houston, TX 77027-9726
713-622-3311

ATP Oil & Gas (UK) Limited
Victoria House, London Square, Cross Lanes
Guildford, Surrey GU1 1UJ
United Kingdom
44 (0) 1483 307200

ATP Oil & Gas (Netherlands) B.V.
Dokweg 31 (B)
1976 CA IJmuiden
The Netherlands
31 (0) 255 523377
www.atpog.com

